

Claims

1. A method for processing a plurality of swap requests comprising:
 - receiving a first swap request in a pipeline;
 - executing the first swap request;
 - receiving a second swap request in the pipeline immediately subsequent to the first swap request; and
 - determining if the first swap request and the second swap request swap a same register.
2. The method of claim 1, further comprising executing the second swap request if the first swap request and the second swap request do not swap the same register.
3. The method of claim 2, wherein the first swap request includes a first save operation and a first restore operation and the second swap request includes a second save operation and a second restore operation.
4. The method of claim 3, wherein executing the second swap request if the first swap request and the second swap request do not swap the same register includes executing the first restore operation and the second save operation substantially simultaneously.
5. The method of claim 1, further comprising:

delaying execution of the second swap request if the first swap request and the second swap request swap the same register; and
executing the second swap request.

6. The method of claim 5, wherein the execution of the second swap request is delayed sufficient to allow the execution of the first swap request to be completed.

7. The method of claim 5, wherein the execution of the second swap request is delayed a predetermined number of clock cycles.

8. The method of claim 5, wherein the execution of the second swap request is delayed one clock cycle.

9. The method of claim 1, wherein the pipeline includes more than one processing thread.

10. The method of claim 9, wherein the same register further includes the same register in a same processing thread.

11. The method of claim 1, wherein determining if the first swap request and the second swap request swap the same register occurs as the second swap request is received.

12. A method for processing a plurality of consecutive swap requests in a multithreaded microprocessor pipeline comprising:
 - receiving a first swap request in a pipeline;
 - executing the first swap request;
 - receiving a second swap request in the pipeline; and
 - determining if the first swap request and the second swap request swap a same register in a same processing thread.
13. The method of claim 12, further comprising executing the second swap request if the first swap request and the second swap request do not swap the same register.
14. The method of claim 12, further comprising:
 - delaying execution of the second swap request at least one clock cycle if the first swap request and the second swap request swap the same register; and
 - executing the second swap request.
15. A pipeline architecture for a processing thread comprising:
 - a plurality of pipeline registers, at least one of the plurality of pipeline registers being capable of comparing a first swap request and a second swap request; and
 - a plurality of active registers.

16. The pipeline architecture of claim 15, wherein the plurality of pipeline registers includes at least eight pipeline registers, and wherein the at least eight pipeline registers are linked to one of the plurality of active registers.

17. The pipeline architecture of claim 15, wherein the plurality of pipeline registers includes 32 pipeline registers.

18. The pipeline architecture of claim 15, wherein the pipeline architecture is one of at least two pipeline architectures in a single multithreaded microprocessor.